REMARKS

Claims 1-11 are currently pending in the application. Claims 1 and 6 are in independent form. Claims 12-17 are herein canceled without prejudice as being drawn to withdrawn claims. Claims 5 and 10 are herein canceled without prejudice as these limitations (the chemical being chemical warfare agents, agricultural pesticides, and insecticides) have been added to the independent claims.

Claims 1-11 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, “a surface” in claims 1, 6, and 11 is unclear. In response thereto, claims 1 and 6 have been amended to recite “the surface” to refer to the “predetermined surface”. It is noted that claim 11 does not have an antecedent problem. Also, “fichlor, sarinase, somanase, and parathion hydrolase” are unclear in claims 3 and 8. In response thereto, the thymol blue/Fichlor, thymol blue/sarinase, thymol blue/somanase, and thymol blue/parathion hydrolase indicators are composed of two different parts. One part is a pH type of indicator (thymol blue) and the other part is an enzyme indicator (Fichlor, sarinase, somanase, and parathion hydrolase). See paragraph [0036], emphasis added:

[0036] The sulfur mustard (HD):S(CH.sub.2CH.sub.2Cl).sub.2 as shown in FIG. 1, contains a non-bonding electron pair on sulfur atom that is a Lewis base. When indicators (1) and (2) are in contact with HD (a blistering agent), the reaction between Lewis base: SR.sub.2, and Lewis acid Cu.sup.2+, can alter the spectroscopic transition of the Cu.sup.2+d.sup.9 metal ion in these metal-ligand complexes. A sharp color change from sky blue to violet is expected for indicator (1) and a blue to green for indicator (2). The indicator (3) makes use of a metal-ligand charge-transfer transition in Ni.sup.2+/dimethylglyoxime, of which the indicator color is very sensitive to chemical nature of the chelating strength and sites. When indicator (3) is in contact with the VX nerve agent as listed in FIG. 1, the chelating sites of tertiary amino group and RR'(P.dbd.O)SR" group in VX can effectively alter the Ni.sup.2+

ligand charge-transfer band and create a color change from red to yellow (green or blue). The indicators (4)-(7) have similar characteristics. ***All of the indicators (4)-(7) use a pH indicator, thymol blue, to sense the hydrolytic reaction products, phosphonic, and sulfonic acids.*** These acids give a pH lower than 2.0 for thymol blue and display a sharp color change from blue (yellow) to red. The thymol blue is selected because it can be used in the basic range (color change from blue to yellow for a pH range from 9.6 to 8.0) as well as in the acidic range (color change from yellow to red for a pH range from 2.8 to 1.2). ***The decontamination processes for indicators (4)-(7) are different. For indicator (4), the VX nerve agent is oxidized by a commercial N-chloro oxidant, Fichlor (sodium N,N-dichloroisocyanurate). For indicators (5), (6), and (7), the GB nerve agent, GD nerve agent, and parathion pesticide are hydrolyzed by the corresponding enzymes, sarinase, somanase, and parathion hydrolase, separately.***

Therefore, these terms are not indefinite. Reconsideration of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claims 1-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,200,334 to Dunn in view of U.S. Patent Application Publication No. 2003/0224530 to Anvar, et al. Specifically, the Office Action holds that Dunn discloses a charge-transfer chemical sensor comprising a sol-gel material affixable to a predetermined surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical, but does not specifically disclose a backing that enables affixation to the predetermined surface. The Office Action holds that Anvar, et al. discloses a sensor having three layers, wherein the adhesion of sol-gel layers can be promoted by an adhesion layer between one sol-gel layer and another or a sol-gel and a substrate. Therefore, it would have been obvious to modify Dunn's sensor to include a backing to enable the sensor to be affixable to a surface as disclosed in Anvar, et al. Reconsideration of the rejection under 35 U.S.C. §103(a), as being unpatentable over Dunn in view of Anvar, et al. is respectfully requested.

> "Any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed"; however, that reason must be present for the combination to be obvious. *KSR Intern Co. v. Teleflex*, 127 S. Ct. 1727, 1742, U.S. (2007). This requirement was confirmed in *Takeda Chem. Indust., et al. v. Alphapharm*, No. 06-1329 (Fed. Cir. 2007).
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> "The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit." MPEP Section 2143.
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> "The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art." *KSR International Co. v. Teleflex Inc.*, 83 UDPQ2d 1385, 1395 (2007) and MPEP Section 2143.

Dunn discloses a porous glass structure prepared by a sol-gel process that entraps an active biological material. The structure is useful as sensors for detecting the presence of compounds that can react with the entrapped material, and photometric detection can be used to monitor the changes in the entrapped enzyme or its environment in use. Dunn does not, however, disclose using the structure to detect a chemical such as chemical warfare agents, agricultural pesticides, and insecticides. Dunn also does not disclose a backing that allows affixation to an exterior predetermined surface.

Anvar, et al. discloses a sensor with three sol-gel layers that can adhere to a substrate by an adhesion layer. This adhesion layer can also be used to connect the separate sol-gel layers to each other. Anvar, et al. does not disclose a sensor wherein the ***substrate*** includes an adhesion layer in order to be affixed on an

exterior surface. Anvar, et al. also does not disclose a sensor that can detect chemical warfare agents, agricultural pesticides, and insecticides.

The independent claims of the present invention have also been amended to clarify that the predetermined surface is an exterior surface, i.e. not part of the sensor itself. Support for this amendment can be found in paragraph [0032], emphasis added:

[0032] Once formed, the sensor/indicator can be used to detect compounds that are airborne. Preferably, the sensor includes a backing that enables the sensor to be affixed to ***an exterior surface of a piece of clothing, a vehicle, or a person's skin***. The sensor is extremely sensitive and can detect the presence of a compound prior to any potential harm inflicted by the compound.

This distinction is important because of the chemicals that the sensor can detect, i.e. chemical warfare agents, agricultural pesticides, and insecticides, as required by the presently pending independent claims. These chemicals are found out in the environment and war zones. The sensor can easily be used by field workers or soldiers by attaching the sensor to their clothing or a vehicle and the sensor presents a fast and sensitive response that can easily be interpreted by these individuals who do not have experienced knowledge of chemicals. While Dunn makes a general statement about use of the porous glass structure in the environment, these specific uses as well as the affixation to an exterior surface are not disclosed or suggested by Dunn or Anvar, et al.

Since neither the cited references alone or in combination with knowledge in the art suggest the currently claimed invention, it is consequently respectfully submitted that the claims are clearly patentable over the combination, even if the combination were to be applied in opposition to applicable law, and reconsideration of the rejection is respectfully requested.

Claims 1-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,637,507 to Wicks in view of Anvar, et al. Specifically, the Office Action holds that Wicks discloses a charge-transfer chemical sensor comprising a sol-gel material affixable to a predetermined surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical, but does not specifically disclose a backing that enables affixation to the predetermined surface. The Office Action holds that Anvar, et al. discloses a sensor having three layers, wherein the adhesion of sol-gel layers can be promoted by an adhesion layer between one sol-gel layer and another or a sol-gel and a substrate. Therefore, it would have been obvious to modify Wick's sensor to include a backing to enable the sensor to be affixable to a surface as disclosed in Anvar, et al. Reconsideration of the rejection under 35 U.S.C. §103(a), as being unpatentable over Wicks in view of Anvar, et al. is respectfully requested.

Wicks discloses a porous glass matrix made in accordance with a sol-gel process and includes an additive dispersed throughout the matrix. This additive can be an indicator for a specific analyte, such as a pH indicator. When prepared, the sol-gel is porous and the analyte can enter the matrix and react with the indicator. The sol-gel can be applied to a substrate such as a flow cell, lens, optical fiber, or indicator strip. Wicks' sol-gel is meant for lab use and not for outside surfaces. As stated above, Anvar, et al. does not disclose an adhesive layer for affixing the substrate to an exterior surface. One skilled in the art would not combine the invention of Wicks with the backing of Anvar, et al. to arrive at the present invention.

Since neither the cited references alone or in combination with knowledge in the art suggest the currently claimed invention, it is consequently respectfully submitted that the claims are clearly patentable over the combination, even if the combination were to be applied in opposition to applicable law, and reconsideration of the rejection is respectfully requested.

The remaining dependent claims not specifically discussed herein are ultimately dependent upon the independent claims. References as applied against these dependent claims do not make up for the deficiencies of those references as discussed above, and the prior art references do not disclose the characterizing features of the independent claims discussed above. Hence, it is respectfully submitted that all of the pending claims are patentable over the prior art.

In view of the present amendment and foregoing remarks, reconsideration of the rejections and advancement of the case to issue are respectfully requested.

The Commissioner is authorized to charge any fee or credit any overpayment in connection with this communication to our Deposit Account No. 11-1449.

Respectfully submitted,

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CERTIFICATE OF ELECTRONIC FILING VIA EFS-WEB

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I hereby certify that this correspondence is being electronically filed with the United States Patent & trademark Office on the above date.

/Sherry Kelly/
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